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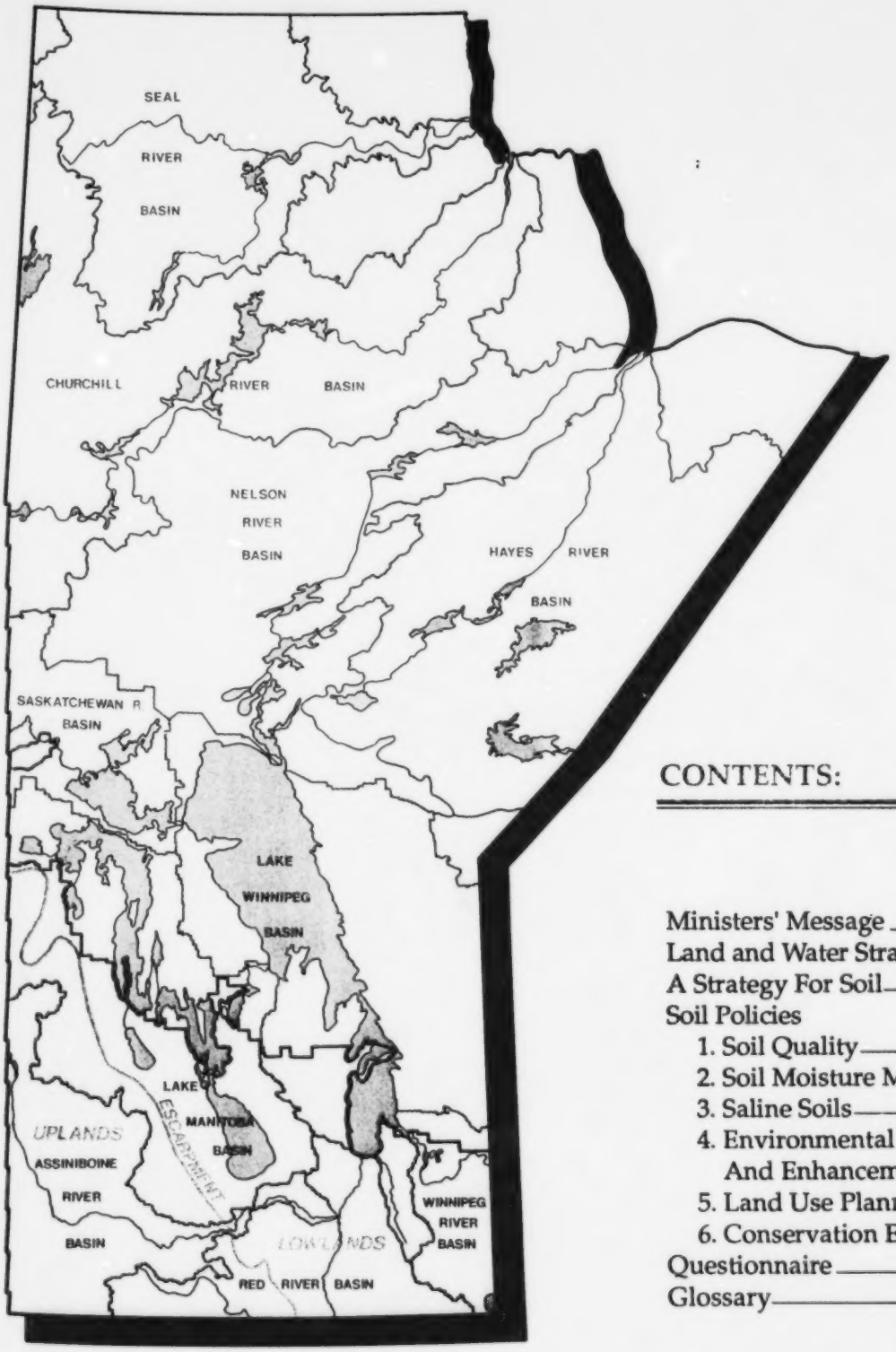
LAND & WATER STRATEGY
THE PROCESS BEGINS

Workbook on Soil

Manitoba



AGRO - MANITOBA

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To Concerned Manitobans...

Sustaining soil productivity is essential to ensuring economic prosperity and conserving our resource base for both rural and urban Manitobans.

The droughts and related soil erosion of the 1980's contrasted by the recent Swan River Valley flood damage, clearly demonstrate the vulnerability of Manitoba's land base.

Only through the development and implementation of comprehensive soil and water strategies will we be able to protect our land base against future degradation and subsequent economic losses.

The Manitoba Government is now consulting with the public to develop a Land and Water Strategy for Manitoba. As part of that planning process we are developing a provincial soil strategy which will define policies for managing our land resources.

Your ideas, concerns and vision are needed to help us develop a soil strategy that will serve the interests of all Manitobans. Together, we can guide the management of our soil and water to ensure their sustainable development for generations to come.

Honourable Glen Findlay
Minister of Agriculture

Honourable Jack Penner
Minister of Natural Resources

The Land And Water Strategy

The Government of Manitoba has adopted the principles of Sustainable Development set out by the World Commission on Environment and Development chaired by the Prime Minister of Norway, Madam Gro Harlem Brundtland. Their report, 'Our Common Future', defined Sustainable Development as:

"development which ensures that the utilization of resources and the environment today does not damage prospects for their use by future generations."

The key concept advanced by 'The Brundtland Report' was that the economy and the environment are inextricably linked. Economic growth is a necessary prerequisite for environmental conservation. Humanity must use resources in order to survive and prosper but we must manage them wisely if they are to be there in the future.

Of primary importance to Manitobans is the development and conservation of our natural resources: the soil, water, forest, wildlife, fisheries, and mineral resources that are vital to our economic future. Our land and water resources have been affected by our activities and we are losing opportunities for future development. The recent drought has illustrated just how fragile our resource based industries are, especially agriculture. The time has come to rebuild those resources so that they will always be there for our use and enjoyment.

What we do on land affects our water resources. Therefore, it is vital that we manage land and water together, with an integrated approach. The government of Manitoba has taken these ideas and proposed a Land and Water Strategy which is based on the following objectives:

1. To sustain and enhance resource productivity and improve the environmental quality of Manitoba.

2. To improve and diversify income and job opportunities.

In the past, economy and the environment have been viewed as mutually exclusive goals. This is certainly no longer the case. We can conserve and enhance our resource base and generate economic activity at the same time.

For example, providing incentives for soil conservation will conserve our vital soil resources and enhance crop productivity. Tree planting will improve wildlife habitat, prevent soil erosion, and result in a forest resource that can be the basis for sustainable economic development. Improving the quality of lakes and rivers, and the construction of carefully managed water retention projects will enhance our quality of life, improve water supplies, and encourage tourism activities where none existed previously. Wildlife and fisheries habitat enhancement and protection will preserve species for our enjoyment plus contribute to conserving genetic resources of plants and animals.

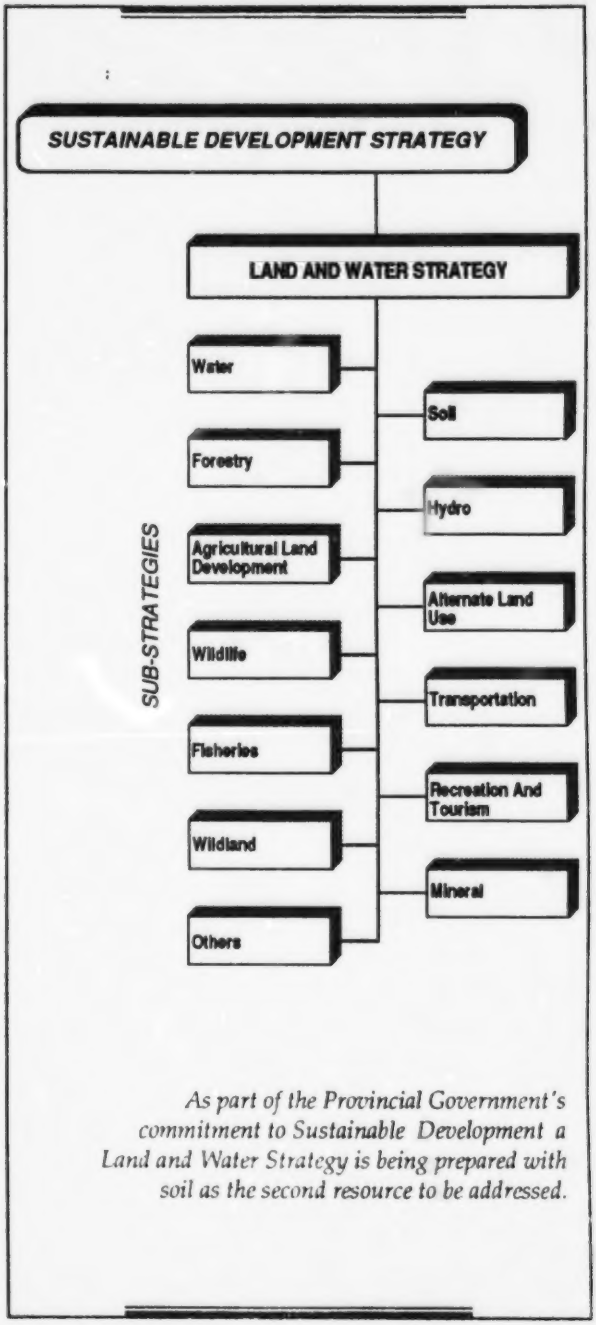
The government is considering ways to link the planning and management of our land and water resources more effectively. For example, the province could, with the cooperation of

municipalities, conservation organizations, farmers and the public, prepare strategies for resource management. Local governments could broaden their own plans to address all land and water issues in their areas.

Our new approach will produce major benefits for rural communities. Manitoba's rural communities have undergone severe change in the last few years. To assist those communities, we intend to use conservation as a tool for economic development, using the principles stated above. If we can diversify the rural economy and conserve the resources that support that economy, our rural communities will stabilize and prosper. Urban communities will also benefit from this approach since resource enhancement will improve recreational opportunities, preserve endangered species, and generally contribute to the economic well-being of Manitobans.

Much of the land in rural Manitoba is privately owned. Regulating the use of private land is difficult, often ineffective, and may seriously affect a farmer's ability to make a living. Governments must retain the right to protect the environment through regulation, and will continue to do so. However, experience shows that regulations alone do not guarantee conservation or effective resource management. To encourage conservation on private land, the government of Manitoba is taking the approach that we must assist landowners to undertake activities that best suit their economic needs, while meeting the province's conservation and resource management objectives.

What has been outlined above is just the beginning of a process. We are taking these concepts to you, the public, for consultation and review. We look forward to hearing your ideas. We know that Manitobans care about the future of our economy and resource base. The joining of economic and environmental concepts will stimulate exciting and vigorous ideas that will take us into the 21st century.



As part of the Provincial Government's commitment to Sustainable Development a Land and Water Strategy is being prepared with soil as the second resource to be addressed.

Why a Soil Strategy?

The provincial government is developing a series of soil policies to guide the management of our soil resources and safeguard them for present and future generations of Manitobans.

Most of the soils used in agriculture are privately owned and managed as farmland. Policies developed for soil resource management must be sensitive to the rights of landowners, yet recognize that soil deterioration and the off-farm effects of erosion often affect the general public. Incentives will encourage land management that is in the public interest.

Provincial land use policies are already in place, in recognition of the importance of our land resources and the need to guide their use and development. A set of soil policies dealing specifically with lands used in agriculture will further the completion of an integrated approach to resource management. Soil stewardship requires involvement and decision-making not only by farmers but all affected resource users.

Nine fundamental objectives have been identified to form the background of a soil conservation and management framework. These are:

1. *To sustain and enhance agricultural productivity while ensuring environmental quality and economic well-being.*

2. *To enhance the long-term productivity of land currently in agricultural production rather than developing new lands.*

3. *To develop integrated working and financial arrangements among municipal, provincial and federal governments and non-government agencies and landowners, for encouraging soil conservation practices.*

4. *To use the soil resource efficiently so as to minimize long-term development and maintenance costs.*

5. *To reduce constraints to soil and water management that cause instability and high risk to the agricultural industry and to the livelihood of the citizens of Manitoba.*

6. *To reduce the unplanned, irreversible conversion of productive soils to other uses.*

7. *To promote markets and marketing mechanisms for agricultural products which will assist in sustaining soil productivity.*

8. *To promote agricultural policies that are compatible with conservation initiatives.*

9. *To reduce the use and the development of land for agriculture where such use or development is not economically or environmentally sound.*

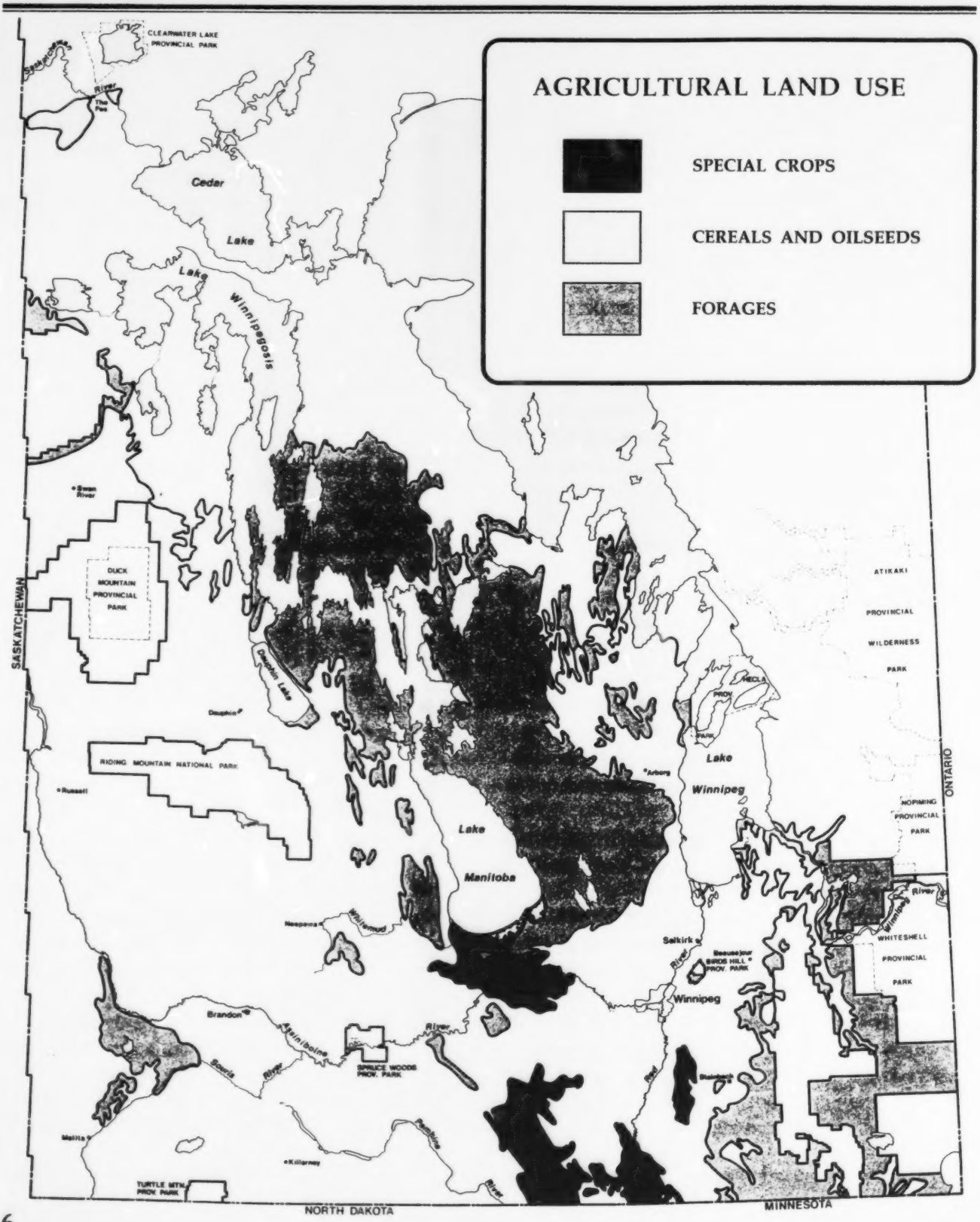
The draft soil policies presented in the following pages were developed from this framework. They are intended to encourage comments and suggestions through a wide public consultation process.

Upon adopting soil policies, the Government of Manitoba will encourage other levels of government, non-government organizations and industry and the public to do likewise. Policies will then serve as a guide for the development of local plans, programs and activities. Participation and financial support will be sought from international organizations, national and local government agencies for multiple resource conservation and development programs.

Some Facts to Consider...

- *There are 19 million acres of farmland in Manitoba of which 13 million are under cultivation.*
- *Our soils have formed over the past ten thousand years. They can be destroyed in decades if not properly managed.*
- *Over 25% of our farmland is at risk from water erosion.*
- *Wind erosion could damage over 40% of our cropland without proper management practices.*
- *On 25% of our farmland, we grow crops that leave soil vulnerable to wind and water erosion.*
- *Soil salinity reduces the productivity of nearly a million acres of farmland in Manitoba.*
- *The productivity of 30% of cropland in Manitoba depends on artificial drainage.*
- *Additional lands suitable for agricultural use are limited in Manitoba and are generally costly to develop.*
- *Every year prime farmland is lost to rural residential subdivisions and other non-agricultural developments.*
- *Reducing soil erosion decreases sedimentation in streams and lakes and improves downstream water quality.*

Soil policies will ensure an enduring resource base for future generations.


AGRICULTURAL LAND USE
SPECIAL CROPS
CEREALS AND OILSEEDS
FORAGES
CLEARWATER LAKE PROVINCIAL PARK
Cedar Lake
Lake Winnipegosis
DUCK MOUNTAIN PROVINCIAL PARK
RIDING MOUNTAIN NATIONAL PARK
Dauphin Lake
Lake Manitoba
Lake Winnipeg
ATIKAKI PROVINCIAL WILDERNESS PARK
NOPIMING PROVINCIAL PARK
WHITESHELL PROVINCIAL PARK
BIRDS HILL PROV. PARK
SPRUCE WOODS PROV. PARK
TURTLE MTN. PROV. PARK
Brandon
Winnipeg
Selkirk
SASKATCHEWAN
ONTARIO
NORTH DAKOTA
MINNESOTA

OBJECTIVE:

To manage the agricultural soil resource of Manitoba so as to enhance soil productivity for the economic benefit of existing and future generations.

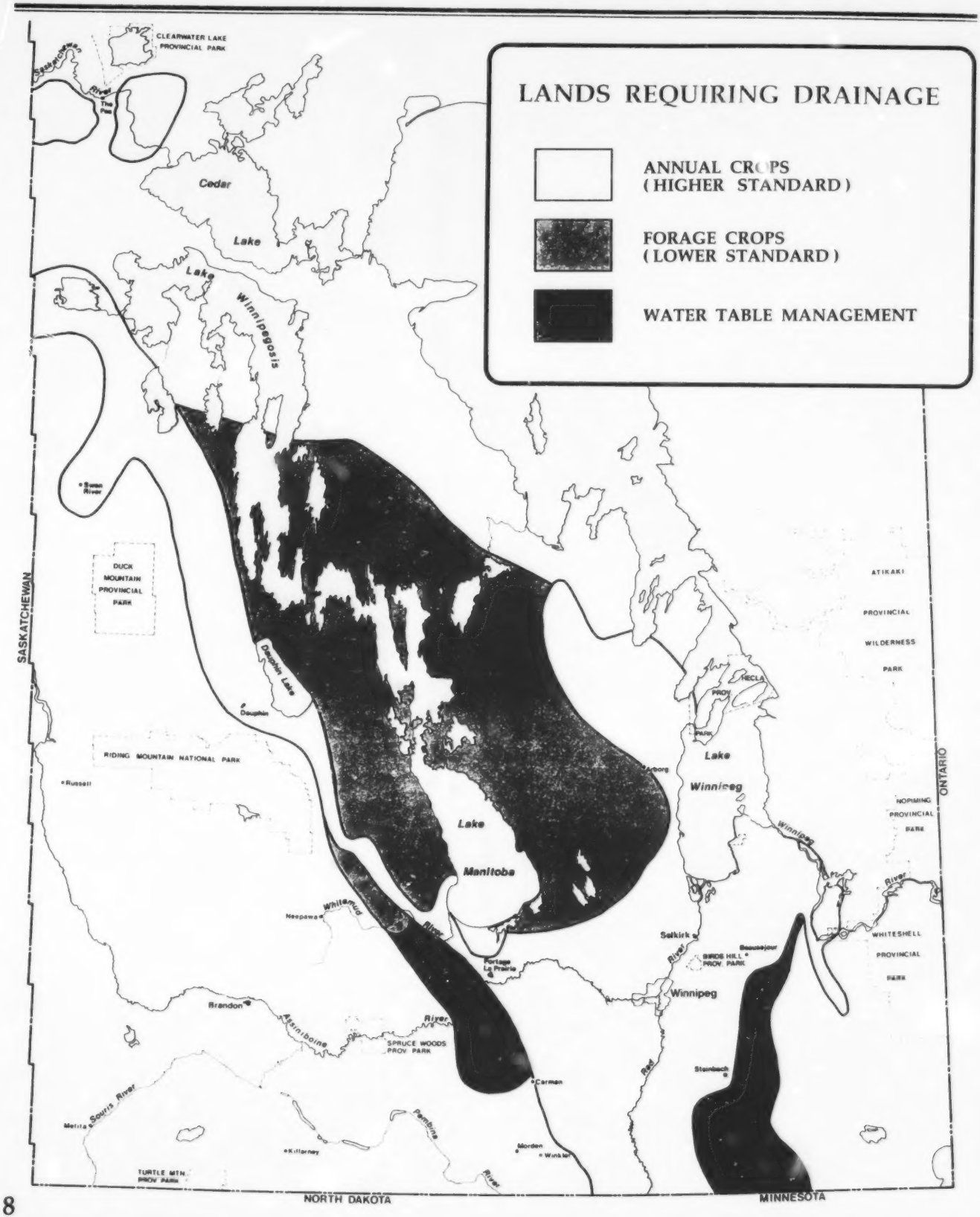
POLICY 1.1
Soil erosion shall be controlled within tolerable loss levels.

Wind blown topsoil clogs drains and culverts and requires millions of dollars in annual maintenance expenditures.

POLICY 1.2
Soil organic matter shall be maintained at the highest feasible level to preserve natural fertility and to retain the physical qualities of soil that are desirable for plant growth.

POLICY 1.3
Soils damaged by wind and water shall be rehabilitated where feasible.

NOTES:


LANDS REQUIRING DRAINAGE
ANNUAL CROPS (HIGHER STANDARD)
FORAGE CROPS (LOWER STANDARD)
WATER TABLE MANAGEMENT
CLEARWATER LAKE PROVINCIAL PARK
Saskatchewan River
The Pas
Cedar Lake
Lake Winnipegosis
Swan River
DUCK MOUNTAIN PROVINCIAL PARK
Dauphin Lake
Dauphin
RIDING MOUNTAIN NATIONAL PARK
Russell
Lake Manitoba
Lake Winnipeg
Gimli
HECLA PROV. PARK
ATIKAKI PROVINCIAL WILDERNESS PARK
NOPIMING PROVINCIAL PARK
WHITESHELL PROVINCIAL PARK
Winnipeg River
Neepawa
Whitemud River
Portage La Prairie
Selkirk
Beausejour
BIRDS HILL PROV. PARK
Winnipeg
Brandon
Assiniboine River
SPRUCE WOODS PROV. PARK
Carman
Red River
Stonewall
Souris River
Melita
Pembina River
Killarney
Morden
Winkler
TURTLE MTN. PROV. PARK
SASKATCHEWAN
ONTARIO
NORTH DAKOTA
MINNESOTA

OBJECTIVE:

To sustain or enhance agricultural productivity on lands that are prone to deficit or surplus soil moisture conditions.

POLICY 2.1

The efficient use of available soil moisture for crop production shall be enhanced by the promotion of appropriate agricultural and conservation practices.

POLICY 2.2

Maintenance and reconstruction of drainage systems shall be of higher priority than expansion into marginal agricultural lands or fringe areas.

POLICY 2.3

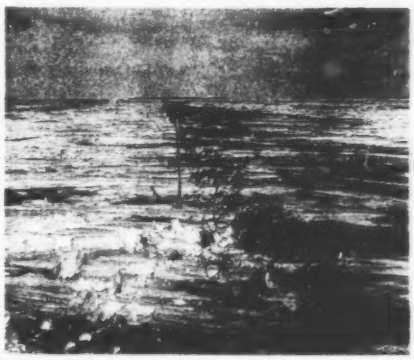
Standards for land drainage systems shall be established based on agronomic, technical, economic, and environmental criteria.

POLICY 2.4

Agricultural soils shall be protected from erosion and siltation by appropriate soil management practices.

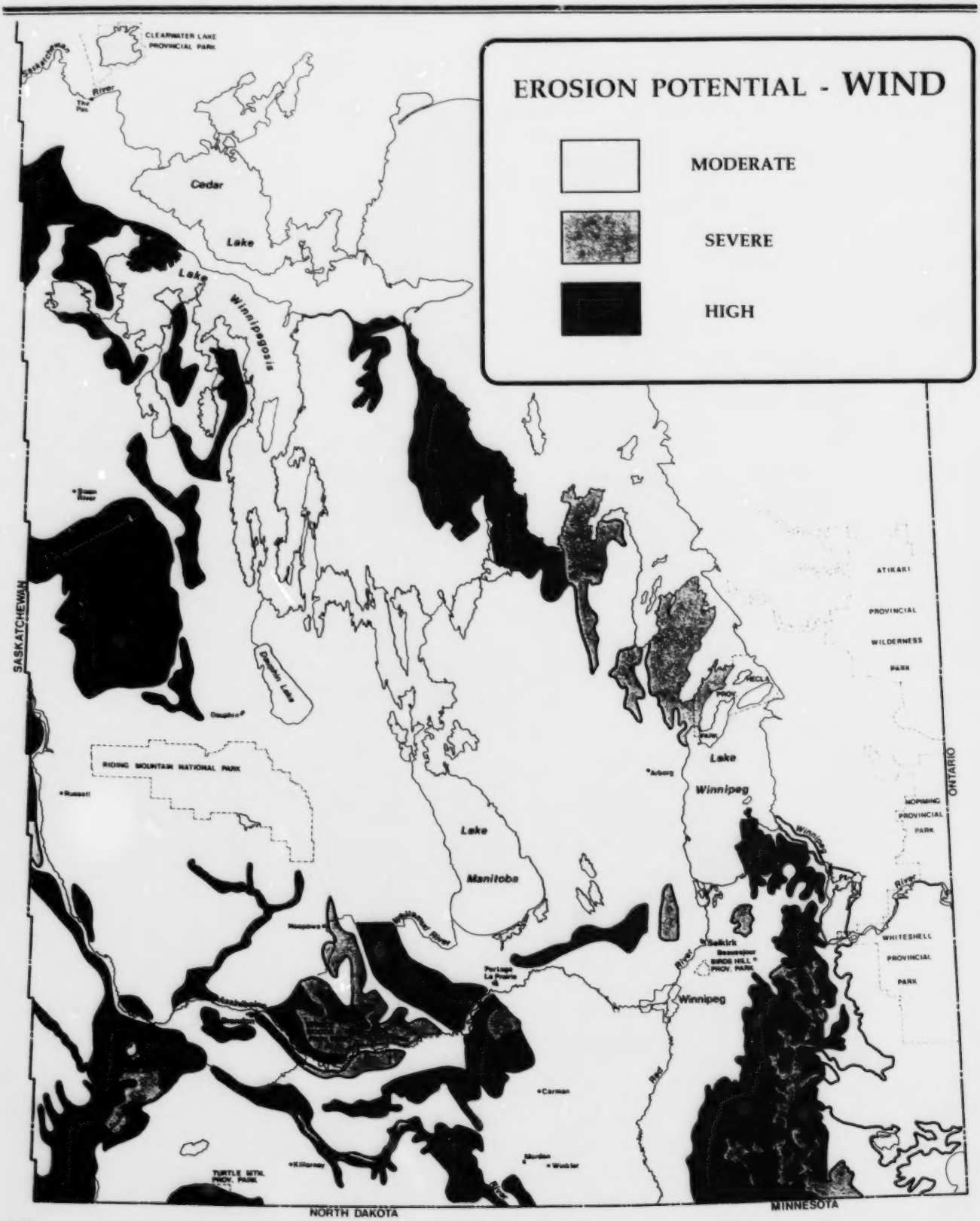
POLICY 2.5

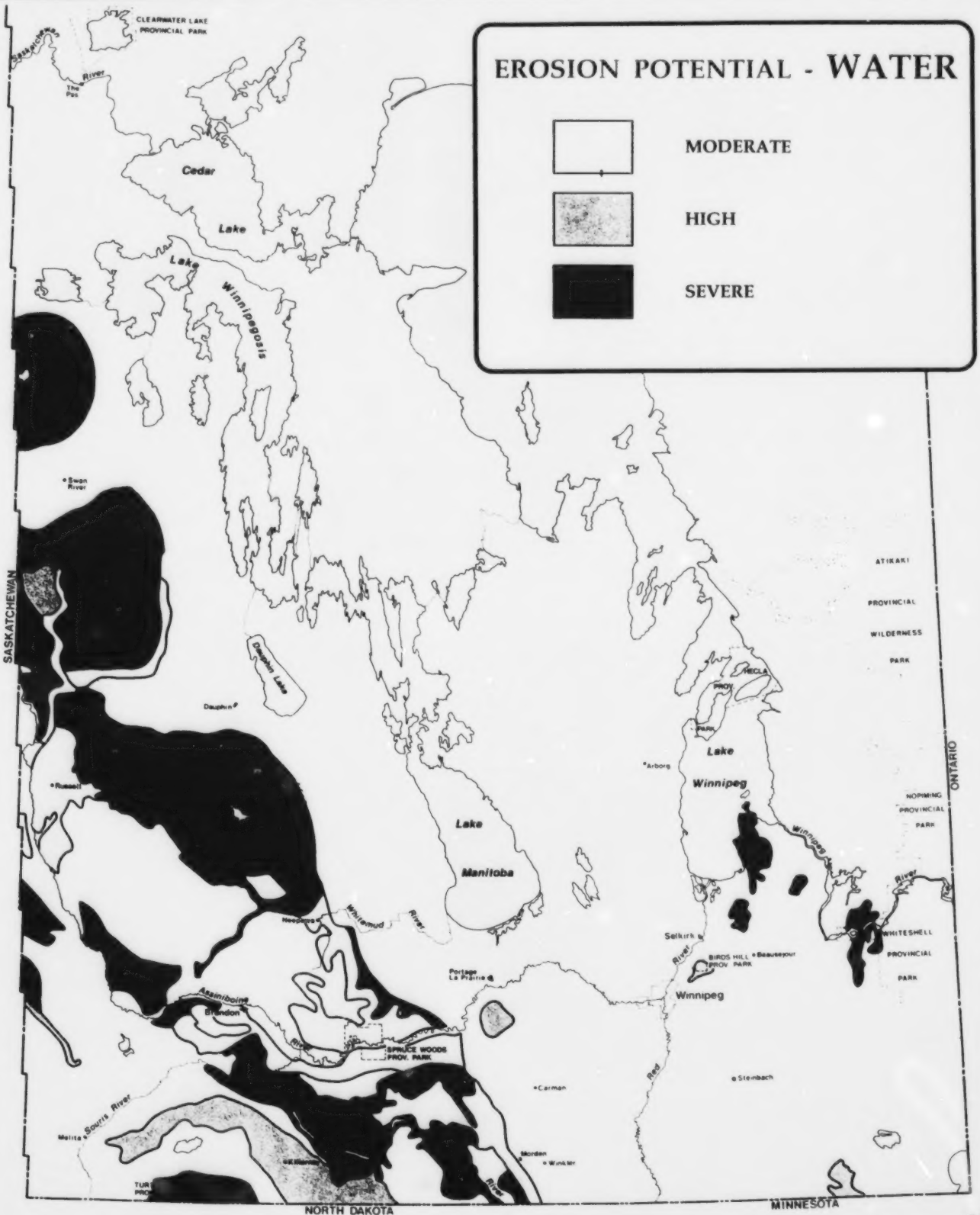
Agricultural soils shall be protected from flooding where feasible.

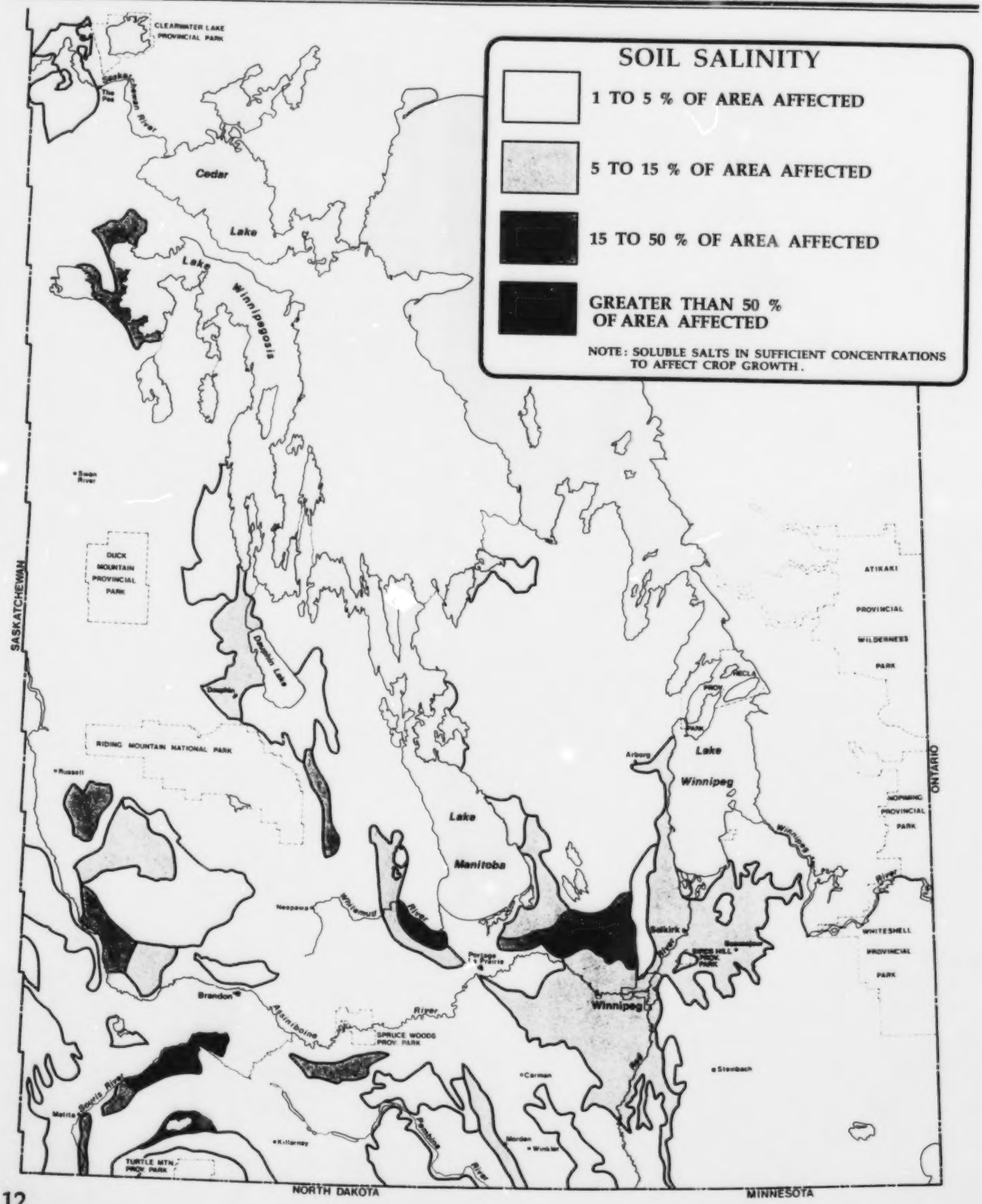


Efficient snow management can provide valuable soil moisture for crop production.

NOTES:


EROSION POTENTIAL - WIND
MODERATE
SEVERE
HIGH
CLEARWATER LAKE PROVINCIAL PARK
Cedar
Lake
Lake
Winnipegosis
SASKATCHEWAN
RIDING MOUNTAIN NATIONAL PARK
Russell
Dauphin Lake
Lake
Manitoba
Lake
Winnipeg
Arborg
ATIKAKI
PROVINCIAL
WILDERNESS
PARK
HECLA
PROV.
PARK
NOPIMING
PROVINCIAL
PARK
ONTARIO
WHITESHELL
PROVINCIAL
PARK
Selkirk
BIRDS HILL
PROV. PARK
Winnipeg
Portage
La Prairie
Carman
Morden
Winkler
TURTLE MTN.
PROV. PARK
NORTH DAKOTA
MINNESOTA


EROSION POTENTIAL - WATER
MODERATE
HIGH
SEVERE
CLEARWATER LAKE PROVINCIAL PARK
Saskatchewan River
Cedar Lake
Lake Winnipegosis
SASKATCHEWAN
Swan River
Dauphin Lake
Dauphin
Russell
Lake Manitoba
Whitemud River
Assiniboine River
Brandon
SPRUCE WOODS PROV. PARK
Souris River
Melita
Carman
Morden
Winkler
NORTH DAKOTA
Portage La Prairie
Arborg
Lake Winnipeg
Selkirk
BIRDS HILL PROV. PARK
Beausejour
Winnipeg
Winnipeg River
Red River
Steinbach
ATIKAKI PROVINCIAL WILDERNESS PARK
NOPIMING PROVINCIAL PARK
WHITESHELL PROVINCIAL PARK
ONTARIO
MINNESOTA


SOIL SALINITY
1 TO 5 % OF AREA AFFECTED
5 TO 15 % OF AREA AFFECTED
15 TO 50 % OF AREA AFFECTED
GREATER THAN 50 % OF AREA AFFECTED
NOTE: SOLUBLE SALTS IN SUFFICIENT CONCENTRATIONS TO AFFECT CROP GROWTH.
CLEARWATER LAKE PROVINCIAL PARK
Saskatchewan River
Cedar Lake
Lake Winnipegosis
Swan River
DUCK MOUNTAIN PROVINCIAL PARK
Dauphin Lake
RIDING MOUNTAIN NATIONAL PARK
Russell
Lake Manitoba
Whitemud River
Neepawa
Brandon
Assiniboine River
SPRUCE WOODS PROV. PARK
Carman
Morden
Winkler
Pembina River
Boyne River
Portage la Prairie
Winnipeg
Lake Winnipeg
Selkirk
Beausejour
WHITESHELL PROVINCIAL PARK
Steinbach
Arborg
ATIKAKI PROVINCIAL WILDERNESS PARK
NOPIMING PROVINCIAL PARK
Red River
Souris River
Melita
Killarney
TURTLE MTN. PROV. PARK
SASKATCHEWAN
ONTARIO
NORTH DAKOTA
MINNESOTA

OBJECTIVE:

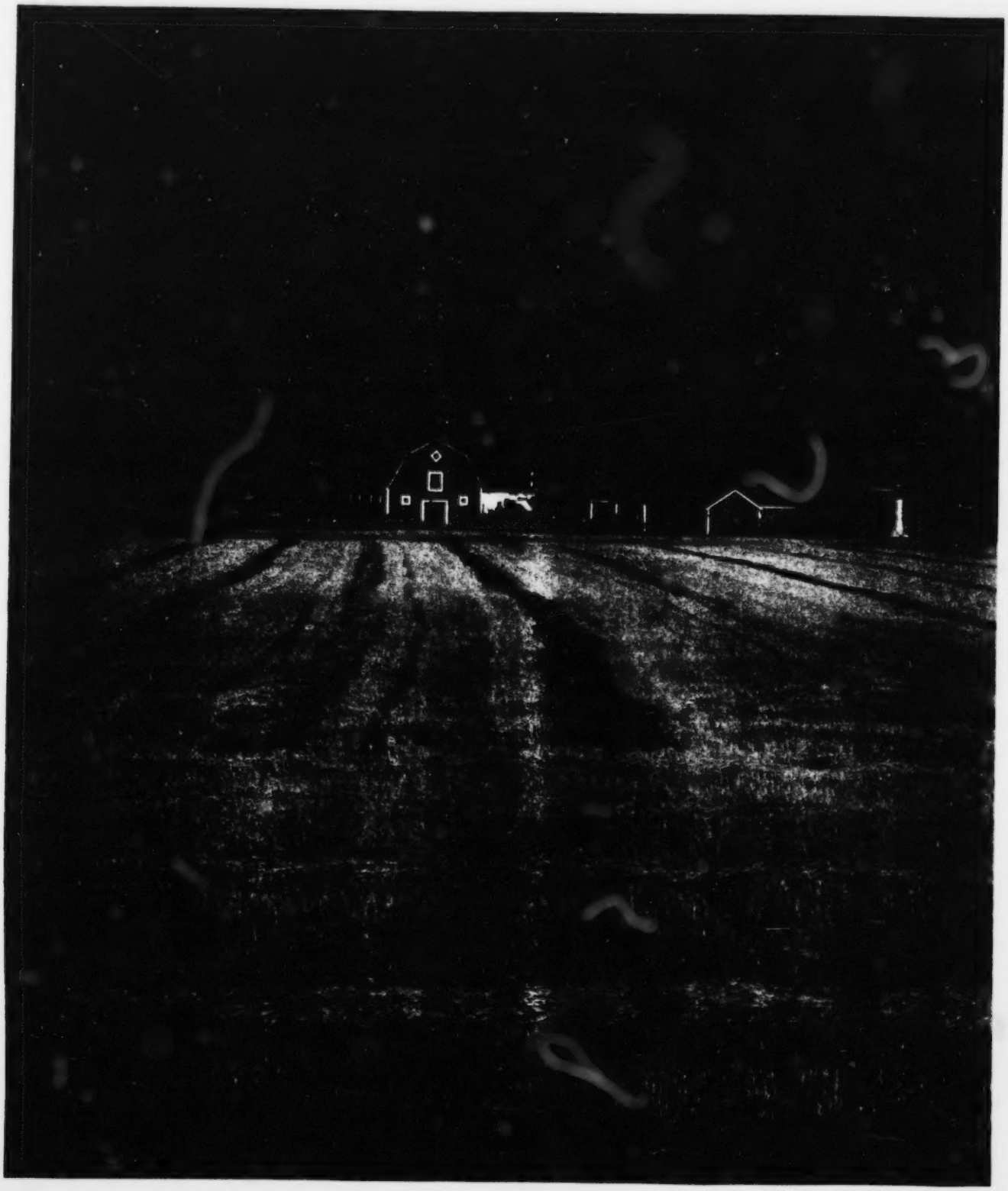
To improve the management of saline soils.

POLICY 3.1
Soil management practices that reduce the spread of soil salinity shall be promoted.

Most saline soils can be managed through appropriate cropping practices.

POLICY 3.2
Severely salinized areas shall be considered for non-agricultural uses.

NOTES:



OBJECTIVE:

To reduce the environmental impact of soil degradation while sustaining soil productivity.

Reducing soil erosion will improve the quality of our environment.

POLICY 4.1

Soil management programs that reduce soil erosion, siltation and non-point sources of pollution shall be promoted.

POLICY 4.2

Soil management programs that reduce or eliminate pollution shall be designed in consultation with affected user groups and implemented in such a manner as to minimize disruption to established practices.

Gully erosion in the Swan River valley, spring, 1988.

NOTES:

OBJECTIVE:

To promote appropriate land use and to protect agricultural operations.

Every year approximately 1500 acres of Manitoba farmland is lost to non agricultural uses.

POLICY 5.1

Land use planning shall protect farmlands and agricultural operations from the adverse impacts of developments that may threaten continued agricultural viability.

POLICY 5.2

Programs shall be developed to convert fragile lands to alternate uses that reduce degradation and provide public benefits.

NOTES:

OBJECTIVE:

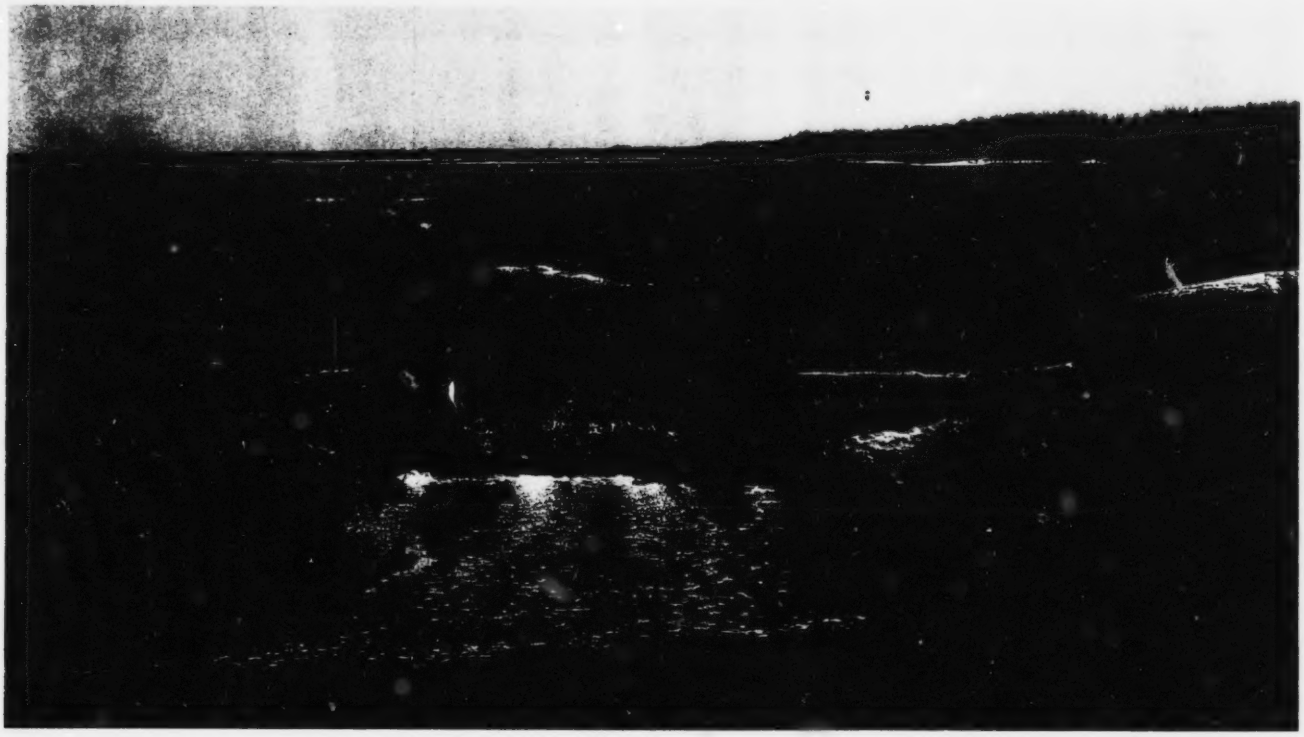
To enhance farmer and general public awareness of the need for soil conservation.

POLICY 6.1

Integrated conservation education programs shall be developed and promoted in cooperation with schools and appropriate government and non-government agencies.

Field trips and demonstration projects play an important role in conservation education.

NOTES:



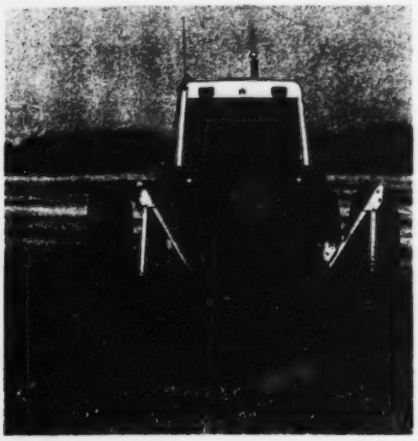
YOUR COMMENTS ARE NEEDED

Soil policies are presented in this booklet to encourage comments and suggestions from a wide readership. Your comments will assist in further development and refinement of the policies.

Please complete the attached questionnaire and return it to the address provided.

Thank you for your help !

GLOSSARY



Fragile Land - lands vulnerable to degradation

Non-Point Sources (of Pollution) - pollution from an undefined source (eg. agricultural chemicals in runoff from fields)

Soil Conservation - activities that maintain soil productivity and protect the environment

Soil Degradation - processes that lessen the capability of a soil to produce crops

Soil Erosion - the wearing away or rapid destruction of the soil by wind and water

Soil Organic Matter - a very desirable soil component comprised of decomposed plant and animal residue

Soil Salinity - the presence of soluble salts in sufficient concentrations to inhibit the growth of desirable plant species

An Invitation To Participate

PHASE 1

Premier announces Land & Water Strategy
Nov. 24, 1988

PHASE 2

Minister of Natural Resources leads public discussion on water policies
Jan/Feb, 1989

PHASE 3

Broad based public consultation begins
March/April, 1989

PHASE 4

Cabinet adopts soil and water strategies
July, 1989

Continuing process towards Land and Water Strategy

Need more information or have additional comments?

Phone: 945-5718

Complete the Workbook...

Workbooks are a way of letting us know what you think. They list draft policies on a range of resources and are designed to encourage comments and suggestions for refining the policies. Water was chosen as the first topic for discussion. Soil is the second resource that is being addressed. Additional workbooks will be prepared for discussion at a later date.

Every Manitoban will be given the opportunity to present ideas and concerns. Let us know what you think!

"Thank you for investing your time and energy in working toward a Land and Water Strategy for Manitobans"

Premier Gary Filmon